

UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
TYLER DIVISION

GEORGETOWN RAIL EQUIPMENT  
COMPANY, a Texas corporation,

Plaintiff,

v.

HOLLAND L.P., an Illinois corporation,

Defendant.

Case No. 6:13-cv-366

**HOLLAND L.P.'S RESPONSIVE *MARKMAN*  
CLAIM CONSTRUCTION BRIEF UNDER P.R. 4-5**

## **TABLE OF CONTENTS**

TABLE OF AUTHORITIES .....	iii
Cases .....	iii
Federal Statutes .....	iv
I.    INTRODUCTION .....	1 – 4
A. Overview of The '329 Patent Technology. ....	1 – 2
B. Prosecution History of The '329 Patent.....	2 – 4
II.   CLAIM CONSTRUCTION LAW .....	4 – 7
III.  THE CLAIM TERMS AT ISSUE .....	7 – 8
IV.   HOLLAND'S PROPOSED CONSTRUCTION OF TERMS IN THE '329 PATENT .....	8 - 20
A.    Dispute No. 1 (Phrase No. 7) of the '329 Patent .....	8 – 10
B.    Dispute No. 2 (Phrase No. 7) of the '329 Patent .....	10 – 11
C.    Dispute No. 3 (Phrase No. 8) of the '329 Patent .....	11 – 12
D.    Dispute No. 4 (Phrase No. 9) of the '329 Patent .....	12 – 14
E.    Dispute No. 5 (Phrase No. 9) of the '329 Patent .....	14 – 15
F.    Dispute No. 6 (Phrase No. 10) of the '329 Patent .....	15 – 17
G.    Dispute No. 7-8 (Phrase No. 10) of the '329 Patent .....	17 – 18
H.    Dispute No. 9 (Phrase No. 11) of the '329 Patent .....	18 – 19
I.    Dispute No. 10 (Phrase No. 11) of the '329 Patent .....	19 - 20
V.    CONCLUSION.....	20

## TABLE OF AUTHORITIES

### CASES

<u>Atofina v. Great Lakes Chem. Corp.,</u> 441 F.3d 991 (Fed. Cir. 2006).....	5
<u>Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc.,</u> 262 F.3d 1258 (Fed. Cir. 2001).....	5
<u>Blackboard, Inc. v. Desire2Learn, Inc.,</u> 574 F.3d 1371 (Fed. Cir. 2009).....	9
<u>Callaway Golf Co. v. Acushnet Co.,</u> 576 F.3d 1331, 1346 (Fed. Cir. 2009).....	6
<u>Ergo Licensing, LLC v. Carefusion 303, Inc.,</u> 673 F.3d 1361 (Fed. Cir. 2012).....	12
<u>Hill-Rom Co. v. Kinetic Concepts, Inc.,</u> 209 F.3d 1337 (Fed. Cir. 2000).....	5
<u>Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.,</u> 381 F.3d 1111 (Fed. Cir. 2004).....	4
<u>In re De Seversky,</u> 474 F.2d 671, 674 (C.C.P.A. 1973) .....	6
<u>Markman v. Westview Instruments, Inc.,</u> 517 U.S. 370 (1996).....	4
<u>Netgear, Inc. v. Ruckus Wireless, Inc.,</u> 2013 U.S. Dist. LEXIS 140047 (D. Del. 2013) .....	9
<u>On Demand Mach. Corp. v. Ingram Indus., Inc.,</u> 442 F.3d 1331 (Fed. Cir. 2006) .....	5
<u>Phillips v. AWH Corp.,</u> 415 F.3d 1303 (Fed. Cir. 2005) ( <i>en banc</i> ) .....	4, 5
<u>Vitronics Corp. v. Conceptronic Inc.,</u> 90 F.3d 1576 (Fed. Cir. 1996).....	5

**FEDERAL STATUTES**

35 U.S.C. § 103.....	3
35 U.S.C. § 112, ¶ 6.....	10, 12, 13, 15, 16, 16, 19, 20-23

Defendant, Holland L.P. (“Holland”), in accordance with LPR 4.5 and the Amended Docket Control Order (Dkt. No. 77), hereby files its Responsive Claim Construction Brief, and respectfully asserts as follows:

## **I. INTRODUCTION**

This is a patent infringement case asserted by Plaintiff Georgetown Rail Equipment Company (“Georgetown”) for its U.S. Patent No. 7,616,329 (“the ‘329 patent”) against Holland’s Rail Vision System. Specifically, the present suit accuses Holland’s Rail Vision System of infringing only Claim 16 of the ‘329 patent, which issued on November 10, 2009 with 80 total claims. *See* Exhibit A, the ‘329 patent, attached hereto.

Holland and Georgetown are competitors where both manufacture, use, sell, and offer for sale railroad track inspection systems. (Dkt.# 1, Compl. ¶¶ 8, 9). Georgetown filed the present suit accusing Holland’s Rail Vision System of infringing Claim 16 of the ‘329 patent. (*Id.*, ¶¶ 10-13, 15-20).

### **A. Overview of the ‘329 Patent Technology**

The ‘329 patent states it is directed to a system and methods for inspecting aspects of a railroad track using a laser, camera and a processor (Exhibit A, “Field of Invention” para [0002]). The measurable aspects of the disclosed system are alleged to include: the spacing between crossties, the angle of ties with respect to the rail, cracks and defects in the surface of ties, missing tie plates, misaligned tie plates, sunken tie plates, missing fasteners, damaged fasteners, misaligned fasteners, worn or damaged insulators, rail wear, gage of rail, ballast height relative to ties, size of ballast stones, and a break or separation in the rail (*Id.*, “Summary of the Disclosure” para [0008]).

To measure each of these aspects, the disclosed system uses the same components: *i.e.*, a laser, camera and a processor. The key to the system and method is within the algorithms used to determine these measurable aspects of the railroad track bed. Generally speaking, the operation of the system (that is, the laser, camera and processor) as it is moved along a railroad track does not change when the desired aspect for measurement changes. The laser projects a light across the track bed from above, the camera captures light reflected from the track bed to generate profile images of the track bed, and the processor stores (as data) and analyzes the images. Only the algorithm of the system changes based on the desired measured aspect of the railroad track bed.

The algorithms, of course, are merely step-by-step processes undertaken by software operating within the processor. The '329 patent allegedly discloses suitable software programs for storing and analyzing the various data obtained with the inspection system (*Id.*, at para [0033]). Listed as well-known and suitable image processing software are Matrox MIL, Common VisionBlox, Labview, eVision, Halcon, and IVP Ranger. Additionally, allegedly well-known tools for analyzing the image data are disclosed, including Region of Interest (ROI) tools, filtering tools, blob tools, edge finders, and histogram tool (*Id.*).

B. Prosecution History of the '329 Patent

Before issuing the '329 patent, the U.S. Patent and Trademark Office ("USPTO") rejected Georgetown's attempt to patent a system for inspecting a railroad track bed comprising only (a) at least one light generator; (b) at least one optical receiver; and (c) at least one processor (*see* original Claim 1). In fact, the USPTO rejected Georgetown's repeated attempts to patent such a system not once, but four times. Georgetown's first attempt was rejected on March 23, 2007 (Exhibit B), its second attempt rejected on October 5, 2007 (Exhibit C), its third attempt

rejected on August 5, 2008 (Exhibit D), and its fourth attempt rejected on April 15, 2009 (Exhibit E). From the first to the last rejection, the USPTO consistently determined that U.S. Patent No. 6,647,891 to Holmes et al. ("Holmes") and U.S. Patent No. 4,700,223 to Shoutaro, issued October 13, 1987 ("Shoutaro"), combined to render the system of original Claim 1 obvious to a person of skill in the art under 35 U.S.C. 103(a). The USPTO determined that the cited prior art reference to Shoutaro discloses a system which uses a laser (5) to project a beam of light, an optical receiver (6) to generate images, and processor means to analyze the images (*see* Actions dated April 15, 2009, page 3 (Exhibit E) and March 23, 2007, page 5 (Exhibit B)). Shoutaro issued nearly 20 years prior to the filing of the application for the '329 patent.

It was not until the addition of very specific language on March 24, 2008, by Georgetown, that the USPTO finally indicated allowable subject matter in then Claim 17. However, further amendment was required, to rewrite then Claim 17 in independent form in the July 2, 2009 Response, which resulted in now Claim 16 of the '329 patent. The specific language added by Georgetown which resulted in the indication of allowance consisted of five very specific steps, (a) through (e), of an algorithm.

The algorithm for "detecting a misaligned or sunken tie plate" was initially set forth as a limitation in original Claim 17, though no accompanying steps were included (see original Claim 17). The five steps of the algorithm of issued Claim 16 were not originally set forth in any claims. As noted above, these five steps were added to original Claim 17 in the amendment response dated March 24, 2008. The amendment introduced several new terms to the claims, including "frame," "region of interest," "crosstie contour," "tie plate contour," "orientation," and "comparison." At the time of the amendment, the Applicant contended that the added limitations of Claim 17 were supported by paragraph [0055] of the specification (see p. 17 of Response).

As part of the system of Claim 16, the at least one processor is used to analyze images using a five-step algorithm to ultimately detect whether a tie plate is "misaligned or sunken." The images used are generated by an optical receiver which receives reflected light from a light generator (i.e., laser) projecting a beam of light "across the railroad track bed." Generally speaking, the five-step algorithm sequentially (1) identifies a region of interest in a frame of the images, (2) determines whether a tie plate is present in the region of interest, (3) determines a contour of the present tie plate, (4) compares the tie plate contour to a reference contour (i.e., a contour of the tie), and (5) from the comparison, determines if the present tie plate is misaligned or sunken. These five-steps are performed in the above order by the processor using only the images created by the light generator and receiver.

## **II. CLAIM CONSTRUCTION LAW**

The "bedrock principle" of claim construction is "that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). Claim construction is a matter of law for the court to determine. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 384-91 (1996).

Claim terms are generally given their ordinary and customary meaning as they would be understood by one of ordinary skill in the art at the time of the invention, *i.e.*, as of the effective filing date of the patent application. *Phillips*, 415 F.3d at 1313. However, claims of a patent do not exist in a vacuum. "Rather, they are part of 'a fully integrated written instrument' . . . consisting principally of a specification that concludes with the claims. For that reason, claims 'must be read in view of the specification, of which they are a part.'" *Id.* at 1315 (citations



omitted). Thus, “the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* A court's primary focus in “determining the ordinary and customary meaning of a claim limitation is to consider the intrinsic evidence of record, namely, the patent itself, including the claims, the specification and, if in evidence, the prosecution history, from the perspective of one of ordinary skill in the art.” *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 996 (Fed. Cir. 2006). The Federal Circuit in *Phillips* “stressed the dominance of the specification in understanding the scope and defining the limits of the terms used in the claims.” *On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1337-38 (Fed. Cir. 2006). Generally, the scope and outer boundary of the claims is set by the patentee's description of the invention in the specification. *Id.* at 1338. Thus, when engaging in claim construction analysis, it must be remembered that the specification “is the single best guide to the meaning of a disputed term” and is “[u]sually dispositive.” *Phillips*, 415 F.3d at 1315. The specification may act as a dictionary when it expressly defines terms used in the claims. *Vitronics Corp. v. Conceptronic Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). *See also, Hill-Rom Co. v. Kinetic Concepts, Inc.*, 209 F.3d 1337, 1341 n.1 (Fed. Cir. 2000) (courts “have frequently looked to the abstract to determine the scope of the invention” (emphasis added)). The Federal Circuit has also instructed that the specification may define claim terms “by implication” as a result of a term’s consistent use throughout the specification. *Bell Atlantic Network Services, Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001), quoting *Vitronics*, 90 F.3d at 1582, 1584 n. 6. In other words, “a claim term may be clearly redefined without an explicit statement of redefinition.” *Id.* (limiting “modes” to the three modes described in the preferred embodiments).

In addition, “[s]tatements describing the invention as a whole are more likely to support a limiting definition of a claim term than statements that describe only preferred embodiments.”

*C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004). Accordingly, if the patentee describes “the invention” in the specification as “opposed to describing a particular embodiment, it is appropriate to construe the claim terms consistent with the patentee’s description.” *Honeywell Int’l, Inc. v. ITT Industries, Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006).

“Means-plus-function” terms are governed by § 112, ¶ 6, which dictates that “the specification must contain sufficient descriptive text by which a person of ordinary skill in the field of the invention would know and understand what structure corresponds to the means limitation.” *Function Media, LLC v. Google, Inc.*, 708 F.3d 1310, 1317 (Fed. Cir. 2013). Further “[s]tructure disclosed in the specification is ‘corresponding’ structure *only if* the specification or prosecution history *clearly links or associates that structure to the function* recited in the claim.” *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F. 3d 1193, 1208 (Fed. Cir. 2002) (emphasis added). Where the purported structure is a computer, § 112, ¶ 6 “require[s] the specification to disclose the algorithm for performing the function.” *Function Media*, 708 F.3d 1318. Cursory references to software “without providing some detail about the means to accomplish the function, is not enough.” *Id.* (quotations omitted).

To incorporate matter by reference, “a host document must contain language ‘clearly identifying the subject matter which is incorporated and where it is to be found’; a ‘mere reference to another application, or patent, or publication is not an *incorporation* of anything therein . . . .’” *Callaway Golf Co. v. Acushnet Co.*, 576 F.3d 1331, 1346 (Fed. Cir. 2009) (quoting *In re De Seversky*, 474 F.2d 671, 674 (C.C.P.A. 1973)) (emphasis in original). In determining whether material is incorporated by reference into a host document with sufficient particularity,

the Court should use “the standard of one reasonably skilled in the art.” *Advanced Display Systems v. Kent State Univ.*, 212 F.3d 1272, 1283 (Fed. Cir. 2000).

### III. THE CLAIM TERMS AT ISSUE

Independent Claim 16 of the ‘329 patent is reproduced below with the sections/phrases in dispute bolded and separated out in a manner consistent with the Joint Claim Construction Chart. Specifically, the claims are separated into phrases, and then the specific phrases are discussed.

<u>Phrase No.</u>	<u>Claim 16 of the ‘329 patent in its entirety</u>
1.	A system for inspecting a railroad track bed, including the railroad track, to be mounted on a vehicle for movement along the railroad track, the system comprising:
2.	at least one light generator positioned adjacent the railroad track for projecting a beam of light across the railroad track bed;
3.	at least one optical receiver positioned adjacent the railroad track for receiving at least a portion of the light reflected from the railroad track bed and generating a plurality of images representative of the profile of at least a portion of the railroad track bed; and
4.	at least one processor for analyzing the plurality of images and determining one or more physical characteristics of the said portion of the railroad track bed,
5.	the one or more physical characteristics comprising at least a geographic location of the plurality of images along the railroad track bed,
6.	wherein the processor includes an algorithm for detecting a misaligned or sunken tie plate of the railroad track bed, the algorithm comprising the steps of:
7.	(a) <b><i>analyzing a frame</i></b> of the plurality of images, the frame comprising a <b><i>region of interest</i></b> ;
8.	(b) <b><i>determining</i></b> whether the region of interest contains a tie plate;
9.	

10. (c) if a tie plate is present, *determining* a *crosstie contour* and a *tie plate contour*;
11. (d) *comparing* an *orientation* of the crosstie contour and an *orientation* of the tie plate contour; and
- (e) *determining* whether the tie plate is *misaligned* or sunken based upon the comparison.

#### IV. HOLLAND'S PROPOSED CONSTRUCTION OF TERMS IN THE '329 PATENT

##### A. Dispute No. 1 (Phrase No. 7) of the '329 Patent

The first dispute is based upon the emphasized term quoted below in the seventh phrase of Claim 16 of the '329 patent. The seventh phrase reads:

PHRASE NO. 7: "(a) *analyzing a frame* of the plurality of images, the frame comprising a region of interest;"

The following are the parties' proposed constructions for the phrase.

GREX'S PROPOSED CLAIM CONSTRUCTION	HOLLAND'S PROPOSED CLAIM CONSTRUCTION
Plain and ordinary meaning or in the alternative, examining or evaluating	Subject to 35 USC 112, para. 6  Analyzing a frame – Averaging or summing X-Y coordinate pixel data within a contour (i.e., vertical) image.

This dispute has already been addressed by the parties in connection with the Early *Markman* briefing. To summarize, Georgetown has not proposed a construction for "a frame" and has asserted that "analyzing" as used in conjunction with the term "a frame" should be given its plain and ordinary meaning, or alternatively that it should mean "examining or evaluating." In contrast, Holland asserts that no ordinary meaning of the term "analyzing" is fully supported by the specification and that the alternative "examining or evaluating" does not provide any

further guidance because none of the terms define how “a frame” should be “analyzed,” “examined” or evaluated” thus failing to further clarify the ambiguous term.

Moreover, as mentioned in the Early *Markman* briefing, Holland contends that this term is indefinite for lacking corresponding structure under § 112, ¶ 6. Claim 16 is directed to a system for inspecting a railroad track bed that comprises “an algorithm *for*” performing a function. The specification requires the “analyzing” function be carried out by software (Col. 1, lines 53-55). However, no additional description or algorithms are provided to indicate how such systems for inspecting rail performs its function.

Georgetown contends such programming step for inspecting railroad is known. (Col. 1, lines 55-60). However, Georgetown cannot dispute that merely referring to known software does not constitute disclosure of an algorithm. Instead, the patent merely makes passing reference to existing software that simply does not determine missing or sunken tie plate. Furthermore, there is no explanation as to how the decisions of “analyzing a frame” are carried out. “The description of the algorithm must do more than describe the function to be performed, it must describe how the function is to be performed.” *Netgear, Inc. v. Ruckus Wireless, Inc.*, 2013 U.S. Dist. LEXIS 140047, at \*31-33 (D. Del. 2013) *citing Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382-83 (Fed. Cir. 2009) (“[t]he specification contains no description of the structure or the process that the access control manager uses to perform the ‘assigning’ function.”). Accordingly, Georgetown’s arguments are unavailing; the phrase “analyzing a frame” is indefinite for lack of corresponding structure.

If § 112, ¶ 6 does not apply, then as discuss in detail in previous briefing, Holland’s proposed construction clarifies the scope of the ambiguous term and is supported by the specification. In particular the specification only discloses a single method for carrying out the

analysis; namely, summing or averaging the dark and light pixel data from the image.

Accordingly, Holland's proposed construction of "averaging or summing X-Y coordinate pixel data within a contour (*i.e.*, vertical) image" should be adopted. At a minimum, the term "analyzing" must be clarified to state the manner or style of analyzing and should include an averaging or summation analysis with respect to a vertical contour image.

#### **B. Dispute No. 2 (Phrase No. 7) of the '329 Patent**

The second dispute is based upon the emphasized term quoted below in the seventh phrase of Claim 16 of the '329 patent. Again, the seventh phrase reads:

**PHRASE NO. 7:** "(a) analyzing a frame of the plurality of images, the frame comprising a *region of interest*;"

The following are the parties' proposed constructions for the phrase.

<b>GREX'S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND'S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning, or in the alternative, a space or area of interest	Region of interest – a predefined area within the contour ( <i>i.e.</i> , vertical) image that is located below the top of a rail and above a crosstie.

Again, this dispute is already addressed in detail in the parties' previous briefing. To summarize, the term "region of interest" is a nebulous term without any specific meaning outside of a contextual frame of view. This is evident within the '329 patent itself by the reference "R" that appears in Figs. 4A-4C, 6A-6C, 7A-7B and 8-10, though without a uniform size or position. The phrase can literally mean any region that is of interest for any reason. Obviously, the disclosure within the '329 patent cannot support a scope that has no defined meaning. Rather, only the potential regions of interest disclosed in the '329 patent can be of relevance and the only region relevant to the system/process claimed in Claim 16 is the region R shown in Fig. 10.

Accordingly, Holland’s proposed construction of “region of interest” to mean “a predefined area within the contour (*i.e.*, vertical) image that is located below the top of a rail and above a crosstie” is appropriate. Alternatively, at a minimum, the term should be restricted to those regions of interest disclosed in the ‘329 patent that are likely or intended to determine the presence of a tie plate in a vertical contour image.

### C. Dispute No. 3 (Phrase No. 8) of the ‘329 Patent

The third dispute is based upon the emphasized term quoted below in the eighth phrase of Claim 16 of the ‘329 patent. The eighth phrase reads:

**PHRASE NO. 8:** “(b) *determining* whether the region of interest contains a tie plate;”

The following are the parties’ proposed constructions for the phrase.

<b>GREX’S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND’S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning or in the alternative, to conclude, establish, or ascertain.	Subject to 35 USC 112, para. 6  Determining – Comparing the average or sum of the X-Y coordinate pixel data within the region of interest to a value derived from averaging or summing X-Y coordinate pixel data within the region of interest when a tie plate is not present.

Again, this dispute is already addressed in detail in the parties’ previous briefing. To summarize, Georgetown proposes that the term be given its “plain and ordinary meaning.” In contrast, Holland proposes that this term, like “analyzing” above has no meaning outside of the context of the patent because there is now inherent guidance for how the determination is made. When viewed in the context of the ‘329 patent, the only disclosed method or manner by which the determination can be made is through averaging or summing pixel data to derive a value that

is then compared to a standard derived or otherwise known value. Because this is the only method of “determining” that is envisioned and disclosed in the ‘329 patent, it is the only proper construction for “determining” in Claim 16. At a minimum, “determining” must be construed to provide some guidance as to the manner of making the determination, such as through averaging or summing pixel data within the region of interest.

Alternatively, Holland contends that a Section 112 indefiniteness position applies because there is no corresponding structure as required by § 112, ¶ 6. Once again, in order to “determine whether the region of interest contains a tie plate,” there has to be algorithms for the determining step based on data obtained from the railroad inspection system. In fact, the “determining step” in Claim 16 of the ‘329 patent is not a generic function of a general purpose computer. To perform such function, a general purpose computer would need to be adapted to contain an algorithm specific and to be capable of determining (1) a region of interest and (2) a tie plate. “It is only in the *rare circumstances* where any general-purpose computer without any special programming can perform the function that an algorithm need not be disclosed.” *Ergo Licensing, LLC v. Carefusion 303, Inc.*, 673 F.3d 1361, 1365 (Fed. Cir. 2012) (emphasis added). Because there is no definite explanation as to how the “determining whether the region of interest contains a tie plate” is carried out, this phrase is indefinite.

#### **D. Dispute No. 4 (Phrase No. 9) of the ‘329 Patent**

The fourth dispute is based upon the emphasized term quoted below in the ninth phrase of Claim 16 of the ‘329 patent. The ninth phrase reads:

PHRASE NO. 9: “(c) if a tie plate is present, determining a *cross tie contour* and a tie plate contour;”

The following are the parties’ proposed constructions for the phrase.



<b>GREX'S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND'S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning, or in the alternative, an outline, an edge, or a line that represents the profile of the crosstie	Crosstie contour - a partial filtered contour image derived from the crosstie region of interest and consisting only of dark pixel values.

The '329 patent makes abundant use of the term "contour" throughout the disclosure, each time referring to the topographical surface of the track bed or components of the track bed. For example, at column 3, lines 45-47, the '329 patent states "The beam 42 produces a projected line L, shown in Fig. 2, on the track bed that follows the contours of the surfaces and components of the track bed. Further, at column 5, lines 36-41, it is stated that each "image data or frame includes a plurality of pixels given X-Y coordinates and shows a contour of the track bed captured by the cameras 50" (the so-called contour images). The disclosure goes on to note that "Due to filtering and other image processing techniques known in the art, the image includes two pixel values, where the dark pixels represent the contour of the track bed." Of course, the track bed includes both the crosstie and the tie plate (see col. 3, lines 43-44). The dark pixel values are shown in the vertical contour image, FIG. 3, reproduced below.

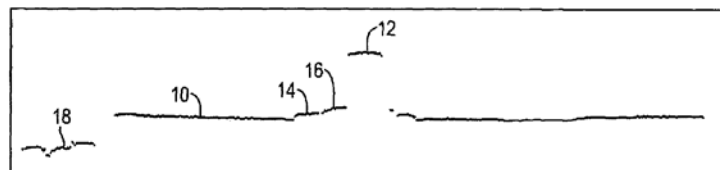


FIG. 3

Thus, when referring to the "contour" of individual components of the track bed, the "contour image" must be broken up into the individual components. The '329 patent does not provide any guidance for breaking up the contour image into individual components. That is,

there is no guidance for “determining a crosstie contour” as opposed to the overall contour image, as shown for example in FIG. 3 above. Accordingly, this phrase is indefinite.

Alternatively, the only reasonable construction of “crosstie contour” means that portion of the contour image that appears within the region of interest; which as outlined above, must be limited to regions in which a crosstie is likely or intended to be found.

While Georgetown's alternate proposal is, at first blush, a reasonable description of the term "contour," in the context of Claim 16 and the disclosed inspection system it is misleading and inaccurate. The image of FIG. 3 et al. is not an outline, edge or line drawing representing the track bed. When a series of dark pixel values share the same Y-coordinate, they will align but they are not the result of an outline, edge or line drawing.

For the reasons above, Holland contends that the term "crosstie contour" as used in this portion of Claim 16 of the '329 patent should be construed to mean “a partial filtered contour image derived from the crosstie region of interest and consisting only of dark pixel values.”

#### **E. Dispute No. 5 (Phrase No. 9) of the ‘329 Patent**

The fifth dispute is based upon the emphasized term quoted below in the ninth phrase of Claim 16 of the ‘329 patent. The ninth phrase reads:

**PHRASE NO. 9:** “(c) if a tie plate is present, determining a crosstie contour and a *tie plate contour*;”

The following are the parties’ proposed constructions for the phrase.

<b>GREX’S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND’S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning, or in the alternative, an outline, an edge, or a line that represents the profile of the tie plate.	Tie plate contour - a partial filtered contour image derived from the tie plate region of interest and consisting only of dark pixel

	values.
--	---------

Similar to the arguments presented in Section D. above, and for those same reasons, Holland contends that the term "tie plate contour" as used in this part of Claim 16 of the '329 patent should be construed to mean "a partial filtered contour image derived from the tie plate region of interest and consisting only of dark pixel values."

#### **F. Dispute No. 6 (Phrase No. 10) of the '329 Patent**

The sixth dispute is based upon the emphasized term quoted below in the tenth phrase of Claim 16 of the '329 patent. The tenth phrase reads:

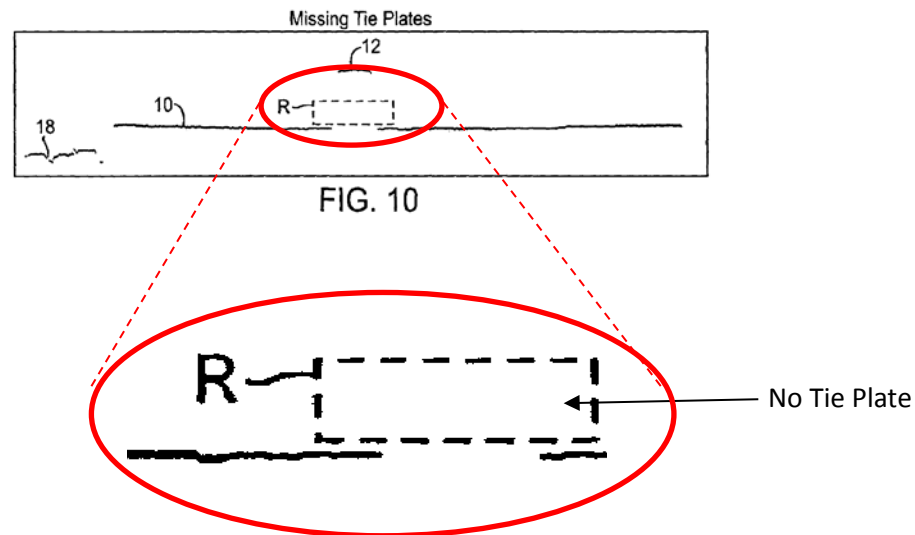
**PHRASE NO. 10:** "(d) *comparing* an orientation of the crosstie contour and an orientation of the tie plate contour; and"

The following are the parties' proposed constructions for the phrase.

<b>GREX'S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND'S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning, or in the alternative, noting or examining the similarities and differences of.	Subject to 35 USC 112, para. 6  Comparing - This term is indefinite

Unlike the term "contour," the term "comparing" is used only twice in the "Detailed Description of the Invention" section of the disclosure. The only entry of relevance occurs in the sentence of column 10, lines 19-22, which states "A misaligned tie plate can be determined by line fitting the portion of the contour of the tie plate and comparing the orientation of the line to that of the crosstie, for example." [Emphasis added]. However, as illustrated in FIG. 10 of the '329 patent, reproduced below, a missing or sunken tie plate has no contour. An expanded reproduction of the Region of Interest R of Figure 10 is also set forth below, showing the

absence of a tie plate contour. Accordingly, it would be impossible to compare a single contour in any meaningful way.



Holland believes that any construction of this term leads to "insoluble ambiguity" and it is therefore indefinite under § 112. Even accepting Georgetown's proposed construction of "noting or examining the similarities and differences of" the two contours, does not resolve the inherent ambiguity of the comparing step. Georgetown has acknowledged that Claim 16 "determines whether a tie plate 14 is missing, misaligned, or sunken . . ." (GREX Opening Claim Construction Brief, p. 6) and has further acknowledged that FIG. 10 illustrates a missing or sunken tie plate. (*Id.* at p. 7, ". . . and detecting missing, misaligned, or sunken tie plates (Ex.1, FIG. 10). The last example, that of tie plate alignment, being relevant to asserted claim 16").

Holland asks the Court to find that this term cannot be reasonably construed and is accordingly indefinite because there is no disclosed structure tied to "comparing." Texas Digital Systems, 308 F.3d at 1208 (requiring a clear link of "structure to the function recited in the claim.")). Once again, no algorithms were provided for "comparing an orientation of the crosstie contour and an orientation of the tie plate contour." Accordingly, Georgetown's construction

should be rejected as inconsistent with the context of the claims, and specification. Instead, should this Court endeavor to provide construction notwithstanding the §112 issues raised above, then Holland proposes that the only reasonable comparison (in view of the proposed constructions of “orientation” below) is a calculation of angular relation to determine whether the contours are parallel or at what angle they intersect.

#### **G. Dispute Nos. 7-8 (Phrase No. 10) of the ‘329 Patent**

The seventh dispute is based upon the emphasized term quoted below in the tenth phrase of Claim 16 of the ‘329 patent. The tenth phrase reads:

**PHRASE NO. 10:** “(d) comparing an ***orientation*** of the crosstie contour and an ***orientation*** of the tie plate contour; and”

The following are the parties’ proposed constructions for the phrase.

<b>GREX’S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND’S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning, or in the alternative, the position or location of.	Orientation - This term is indefinite

As the term "orientation" relates to the "term tie plate contour" in Claim 16, this term is insolubly ambiguous. As detailed in Section F. above, the missing or sunken tie plate has no contour; thus, it cannot be analyzed, determined, or compared; it has no orientation, no position and no location. Accordingly, Holland asks the Court to find that this term cannot be reasonably construed and is accordingly indefinite.

In the alternative, if the tie plate contour of a misaligned or sunken tie plate could be determined (which it cannot), an appropriate construction of the “orientation” of that tie plate contour is a projected linear approximation (*i.e.*, a first degree polynomial “best fit” line) of the

tie plate contour through line fitting the individual data points that constitute the tie plate contour. Support for this construction is found in the only applicable “comparing” and “orientation” disclosures within the ‘329 patent. Specifically, at column 10, lines 19-22, it states “A misaligned tie plate can be determined by line fitting the portion of the contour of the tie plate and comparing the orientation of the line to that of the crosstie, for example.” While the specific comparison is not stated, as outlined above and below, the only reasonable comparison based on the patent specification is a calculation of the angular relation to determine whether the line fitted orientations are parallel (i.e., aligned) or intersect at an angle (i.e., misaligned). In order to do such a comparison, the line fitting must be linear (i.e., a first degree polynomial “best fit” line).

#### **H. Dispute No. 9 (Phrase No. 11) of the ‘329 Patent**

The eighth dispute is based upon the emphasized term quoted below in the eleventh phrase of Claim 16 of the ‘329 patent. The eleventh phrase reads:

PHRASE NO. 11: “(e) *determining* whether the tie plate is misaligned or sunken based upon the comparison.”

The following are the parties’ proposed constructions for the phrase.

<b>GREX’S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND’S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning, or in the alternative, to conclude, establish, or ascertain	Subject to 35 USC 112, para. 6  Determining - This term is indefinite

As the step of “determining” relates to the previous step (d) of comparing the orientation of the non-existent tie plate contour in Claim 16, this term is insolubly ambiguous. As detailed in Section F. above, the missing or sunken tie plate has no contour. Accordingly, it cannot be analyzed, determined, or compared; it has no orientation, no position and no location.

Likewise, Georgetown's alternate proposed construction of "conclude, establish, or ascertain" provides no further guidance because (1) these are mere synonyms for "determine"; and (2) they cannot cure the ambiguity which resides in the step of comparing orientations of a crosstie contour and a non-existent tie plate contour. Georgetown has merely taken one ambiguous term and replaced it with three alternate and equally ambiguous terms, each of which has less support in the specification than the original term.

Holland asks the Court to find that this term cannot be reasonably construed and is accordingly indefinite under § 112. A separately filed brief on indefiniteness provides more detailed arguments on this point.

In the alternative, as outlined above, the only reasonable comparison of the line fitted orientations is a determination of angular relation. Accordingly, should this Court endeavor to provide a construction notwithstanding the § 112 issues raised above, then Holland proposes that the only reasonable construction of "determining" as used in phrase no. 11 is "identifying the tie plate as misaligned or sunken if the crosstie contour and the tie plate contour are not parallel."

#### **I. Dispute No. 10 (Phrase No. 11) of the '329 Patent**

The ninth and final dispute is based upon the emphasized term quoted below in the eleventh phrase of Claim 16 of the '329 patent. The eleventh phrase reads:

PHRASE NO. 11: "(e) determining whether the tie plate is ***misaligned*** or sunken based upon the comparison."

The following are the parties' proposed constructions for the phrase.

<b>GREX'S PROPOSED CLAIM CONSTRUCTION</b>	<b>HOLLAND'S PROPOSED CLAIM CONSTRUCTION</b>
Plain and ordinary meaning, or in the alternative, incorrectly or improperly aligned.	Misaligned - Not aligned with another structure.

Georgetown has agreed to adopt Holland's proposed claim construction as to the term "misaligned" in Claim 16 of the '329 patent. Accordingly, the Court should construe the term "misaligned" to mean "not aligned with another structure." It is noted that this construction, proposed by Georgetown, supports the constructions of "comparing," "orientation" and "determining" proposed by Holland in Disputes Nos. 6-8 above because these constructions answer whether the crosstie is correctly or properly aligned with the tie plate (i.e., when the angular relation between the best fit line for each contour is parallel) or whether they are incorrectly or improperly aligned (i.e., when the angular relation between the best fit line for each contour is not parallel).

## **V. CONCLUSION**

For at least the reasons outlined above, Holland respectfully requests that this Court adopt each of the proposed constructions for the disputed terms.

DATED: February 21, 2014

Respectfully submitted,

/s/Nicholas S. Lee  
Edward L. Bishop  
[ebishop@bishoppatents.com](mailto:ebishop@bishoppatents.com)  
Nicholas S. Lee  
[nlee@bishoppatents.com](mailto:nlee@bishoppatents.com)  
BISHOP & DIEHL, LTD.  
1750 E. Golf Rd., Suite 390  
Schaumburg, IL 60173  
Tel: (847) 969-9123  
Fax: (847) 969-9124

*Counsel for Defendant Holland L.P.*



**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system this 21st day of February 2014.

/s/Nicholas S. Lee  
Nicholas S. Lee